UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/262,775	03/21/99	INDELK R	97/6149

LM51/0830

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ART UNIT	**PAPER NUMBER**
2754	

DATE MAILED: 08/30/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 08/822,778	Applicant(s) INDECK, RONALD S.	
	Examiner William J. Klimowicz	Art Unit 2754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

1)☒ Responsive to communication(s) filed on *22 June 1999* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,18-31,35-47 and 51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,18-31,35-47 and 51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a)☐ All b)☐ Some * c)☐ None of the CERTIFIED copies of the priority documents have been:

1.☐ received.

2.☐ received in Application No. (Series Code / Serial Number) _____ .

3.☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

14) ☐ Notice of References Cited (PTO-892)
15) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
16) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
17) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
18) ☐ Notice of Informal Patent Application (PTO-152)
19) ☐ Other: .

DETAILED ACTION

Claims 1-10, 18-31, 35-47 and 51 have been cancelled.

Claims 11-17 and 32-34, 48-50 and 52-62 are currently pending.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 11, 48-50 and 52-62 are rejected under 35 U.S.C. 102(b) as being anticipated by Schewe (US 4,672,493).

As per claim 11, Schewe (US 4,672,493) discloses a thin film magnetic recording head having a pair of gaps (11, 12) formed between three pole pieces, said gaps being substantially aligned to successively traverse the same portion of a recording medium as the head is moved thereacross, the center pole piece having a planar thin film coil (including 18) wrapped therearound for magnetically energizing each of the gaps.

As per claim 48, the thin film magnetic recording head having a thin film magnetic coil (20), a first pole piece P1 substantially underlying a first half of said magnetic coil, and a second

pole piece P2 substantially overlying the first half of said magnetic coil, the pole pieces P1 and P2 together defining a write gap (26), an extension of P1 substantially underlies a second half (23) of the magnetic coil (20), and a third pole piece P3 that substantially overlies the second half of the magnetic coil (along a direction parallel to the recording medium surface), the pole pieces P2 and P3 together defining a preconditioning gap (24) which is aligned with the write gap wherein the magnetic coil energizes both gaps.

As per claim 49, the coil is a substantially helically wound magnetic coil (20 or 19).

As per claim 50, P3 is magnetically coupled to P2 through a portion of P1 (FIGS. 1 and 3).

As per claim 51, at least one pole piece (P1) that extends across substantially all of the windings of the coil (32).

As per claim 52, the magnetic coil (19 or 20) is comprised of a plurality of windings, with the windings being substantially aligned to be successively adjacent one another so that substantially all of the windings lie in a single plane and extend around a portion of one of the pole pieces.

As per claim 53, the second pole (P2) is between the first and third poles.

As per claim 54, the magnetic coil extends around the second pole (P2).

As per claim 55, the gaps comprise a write and a preconditioning gap.

As per claims 56 and 57, all ends of the poles are magnetically coupled to each and through other.

As per claim 58, the coil is a pancake coil.

As per claim 59, the pole pieces comprise the center pole piece (P2) lying in substantially a single plane with the coil (19) wrapped around a portion thereof wherein the coil (19) lies substantially in a single plane generally parallel to the center pole (P2).

As per claim 60, the pole pieces include upper and lower pole pieces.

As per claim 61, (P2) overlies a portion of coil (19) and is magnetically coupled to the lower pole piece (portion of (P3)) through a center of the coil (19).

As per claim 62, the pole (5) is magnetically coupled to the center pole piece through a portion of the lower pole piece.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 12-17 and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schewe (US 4,672,493).

See the description of Schewe (US 4,672,493) in paragraph 3, supra.

As per claim 13, the gaps (11, 12) are formed between a pole tip of each of the pole pieces having a preselected width (see FIG. 2).

As per claim 14, the pole pieces are aligned (along a direction of tape travel) and the coil is an integrated thin film structure.

As per claim 15, as seen in FIG. 2, the pole pieces comprise a first pole piece P1 (5), a helically wound pancake coil (19) overlying P1, a second pole piece P2 (6) overlying a portion of the coil and magnetically coupled to P1 at a medial portion thereof at a center of the coil, and a third pole piece (7) overlying P2 and magnetically coupled to an end thereof.

As per claim 16, P3 is magnetically coupled to P2 through a portion of P1 (see FIG. 2)

As per claim 17, P3 is magnetically coupled to P1 at an end thereof to substantially surround P2 and the coil between them (FIGS. 1 and 3)

As per claim 33, the write gap (26) is between about .10 microns and about 0.25 microns in width (see COL. 4, lines 28-31).

As per claim 34, the preconditioning gap is *approximately* 0.5 micron in width (see COL. 4, lines 28-31).

As per claim 12 and 32, however, Schewe (US 4,672,493) does not expressly disclose the pair of gaps (11, 12) comprises wherein one gap is wider than the other gap.

Official notice is taken that dual gaps in a magnetic head wherein one gap is wider than another gap are notoriously old and well known in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide one gap (11) of Schewe (US 4,672,493) as being wider than gap (12) (or vice versa) as is conventionally known. The rationale is as follows: one of ordinary skill in the

art would have been motivated to provide one gap (11) of Schewe (US 4,672,493) as being wider than gap (12) (or vice versa) as is conventionally known in order to selectively provide a deeper magnetic transition at one magnetic transducing gap ensuring sufficient overwrite in a manner well known, established and appreciated in the art.

5. Claims 11-17, 32-34, 48-50 and 52-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeffers (US 4,908,724).

As per claim 11, Jeffers (US 4,908,724) discloses a magnetic recording head having a pair of gaps (24, 26) formed between three pole pieces, the center pole piece having a single coil (32) wrapped therearound (i.e., on both sides thereof) for magnetically energizing each of the gaps. The gaps are aligned along a direction of medium motion

As per claim 12, the pair of gaps (24, 26) comprises a write gap (26) and a preconditioning gap (24) with the preconditioning gap (24) being wider than the write gap (26).

As per claim 13, the gaps (24, 26) are formed between a pole tip of each of the pole pieces having a preselected width (see FIG. 2).

As per claim 14, the pole pieces are aligned (along a direction of tape travel) (see FIG. 2).

As per claim 15, as seen in FIG. 2, the pole pieces comprise a first pole piece P1 (left side pole in FIG. 2 and bottom extending to right side, but not including vertical poles (22, 36)), a helically wound coil (32) overlying P1, a second pole piece P2 (36) overlying a portion of the

coil and magnetically coupled to P1 at a medial portion thereof at a center of the coil, and a third pole piece overlying P2 and magnetically coupled to an end thereof.

As per claim 16, P3 is magnetically coupled to P2 through a portion of P1 (see FIG. 2)

As per claim 17, P3 is magnetically coupled to P1 at an end thereof to substantially surround P2 and the coil between them (FIG. 2)

As per claim 32, the preconditioning gap (24) is wider than said write gap (26).

As per claim 33, the write gap (26) is between about .10 microns and about 0.25 microns in width (see COL. 3, lines 16-18).

As per claim 34, the preconditioning gap is *approximately* 0.5 micron in width (see COL. 3, lines 16-18).

As per claim 48, the magnetic recording head having a magnetic coil (32), a first pole piece P1 (left side pole in FIG. 2 and bottom extending to right side, but not including vertical poles (22, 36)) underlying a first half of said magnetic coil (portion of coil between P1 and P2), and a second pole piece P2 (36) overlying the first half of said magnetic coil (portion of coil between P1 and P2), the pole pieces P1 and P2 together defining a write gap (26), an extension of P1 (left side pole in FIG. 2 and bottom extending to right side, but not including vertical poles (22, 36)) underlies substantially all of the magnetic coil (i.e., the horizontal leg of P1 as seen in FIG. 2), and a third pole piece P3 (22) that overlies a second half of the magnetic coil (portion of coil between P2 and P3) and P2, the pole pieces P2 and P3 together defining a preconditioning gap (24), wherein the gaps are aligned along a direction of medium travel.

As per claim 49, the coil is a substantially helically wound magnetic coil (32).

As per claim 50, P3 is magnetically coupled to P2 through a portion of P1 (FIG. 2).

With regard to claims 11, 48, 52 and 59, Jeffers (US 4,908,724) remains silent with respect to the head being a thin film head (inclusive of a pancake coil formed via thin film methods).

Official notice is taken that magnetic heads of the type disclosed by Jeffers (US 4,908,724) wherein the head is of thin film structure (inclusive of a substantially helically wound pancake coil) are notoriously old and well known in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the magnetic recording head of Jeffers (US 4,908,724) as being a thin film head. The rationale is as follows: one of ordinary skill in the art would have been motivated to provide the magnetic recording head of Jeffers (US 4,908,724) as being a thin film head (inclusive of a substantially helically wound pancake coil) in order to produce the head in a batch fabricated manner, ensuring high yield and smaller head construction, as is ***well known, established and appreciated in the art.***

With regard to claim 34, assuming that the preconditioning gap width of Jeffers (US 4,908,724) cannot be considered to be "approximately" .5 micron in width, Official notice is taken of the fact that it is notoriously old and well known in the magnetic head art to routinely modify a magnetic head structure in the course of routine optimization/ experimentation and thereby obtain various standard optimized relationships including those set forth in claim 34.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the magnetic head of Jeffers (US 4,908,724) satisfy the relationships set forth in claim 34. The rationale is as follows: one of ordinary skill in the art would have been motivated to have had the magnetic head of Jeffers (US 4,908,724) satisfy the relationships set forth in claim 34 in order to optimize the bias field and further since it is notoriously old and well known in the magnetic head art to routinely modify a magnetic head structure in the course of routine optimization /experimentation and thereby obtain various standard optimized relationships including those set forth in claim 34. Moreover, absent a showing of criticality (i.e., unobvious or unexpected results), the relationships set forth in claim 34 is considered to be within the level of ordinary skill in the art.

Additionally, the law is replete with cases in which when the mere difference between the claimed invention and the prior art is some range, variable or other dimensional limitation within the claims, patentability cannot be found.

It furthermore has been held in such a situation, the Applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Moreover, the instant disclosure does not set forth evidence ascribing unexpected results due to the claimed dimensions. See Gardner v. TEC Systems, Inc., 725 F.2d 1338 (Fed.

Cir. 1984), which held that the dimensional limitations failed to point out a feature which performed and operated any differently from the prior art.

Response to Arguments

1. Applicant's arguments filed June 22, 1999 have been fully considered but they are not persuasive.

The Applicant alleges that Schewe fails to show a planar coil that energizes two gaps.

The Examiner maintains that Schewe does in fact show a "planar thin film coil." More specifically, e.g., the coil (18) is not in any way curved, bent or in a plane that is perpendicular to the ABS of the head. In fact, the coil (18) is located in a plane by virtue of its serial connection between coils (19) and (20). Thus, the totality of the coil (18) is indeed located in a plane, albeit, may be thicker than the plane which is in two dimensions, not having a thickness, but then again, the coils of the Applicant's application also have a thickness that extends beyond a geometrical plane that has no thickness.

The Examiner, nonetheless, feels that there may be allowable subject matter within the application. The Examiner suggests, perhaps, claiming the functional aspect of the flux flow through the corresponding poles during energization of the poles by the coil in combination with what the structure of the head, relative to the media, is really intended to do. The Applicant is invited to call the Examiner to discuss any potential amendment that may place the application in condition for allowance.

Conclusion

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William J. Klimowicz whose telephone number is (703) 305-3452. The examiner can normally be reached on M-F (6:30AM-5:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stuart S. Levy can be reached on (703) 308-1295. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-9051 for regular communications and (703) 308-9051 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

William J. Klimowicz
Primary Examiner
Art Unit 2754

WJK
August 28, 1999